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Examining student attitudes about science and the learning of science. [1]

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I (along with several collaborators) are exploring students' attitudes and beliefs about science and what it means to learn science, and we are studying how these attitudes impact their education. Our goal is to better understand what shapes students' attitudes, how teachers can best achieve favorable attitudes, and how these attitudes impact learning and career choices. We have developed a survey instrument, the Colorado Learning Attitudes about Science Survey (CLASS) and have validated it with extensive interviews and statistical tests. We have given the survey to over two-thousand students in ten physics courses over the past year both at the beginning and end of the course. We see a number of interesting features even in this rather preliminary data. Most courses shift students' attitudes in an unfavorable direction (away from "expert-like"• and toward "novice-like"•). We see correlations between certain aspects of the students' attitudes and certain aspects of learning, as well correlations with their proclivities to drop a class or enroll in a follow up class. We have also identified some teaching practices that are clearly beneficial and some that are clearly detrimental to students' attitudes about physics. We are giving a refined version of the physics survey to all physics classes and a chemistry version to all chemistry classes in the 2004-5 academic year.

Related Publications

The survey is available at the CLASS website cosmos.colorado.edu/phet/survey/CLASS

Papers from the project:

1. The Design and Validation of the Colorado Learning Attitudes about Science Survey
W. K. Adams, K. K. Perkins, M. Dubson, N. D. Finkelstein and C. E. Wiemancosmos.colorado.edu/phet/survey/CLASS/Adams_PERCfinal.pdf

2. Correlating Student Attitudes With Student Learning Using The Colorado Learning Attitudes about Science Survey
K. K. Perkins, W. K. Adams, S. J. Pollock, N. D. Finkelstein and C. E. Wieman
http://phet.colorado.edu/publications/Perkins_PERC_revisedfinal.pdf [2]

Groups audience:
President's Teaching Scholars Program

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Links
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[2] http://phet.colorado.edu/publications/Perkins_PERC_revisedfinal.pdf